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# Join Us For *Wild Things* 2004

## Celebrate National Wildlife Refuge Week

The week of October 11th marks the Service's annual celebration of National Wildlife Refuge Week. This year's theme is "Wild Things 2004." A free one-day event for the public will be held at the Visitor Center from 10:30 a.m. to 3 p.m. on Saturday, October 16 and will involve an array of activities honoring the Refuge System while providing many opportunities to experience the magnificence of the Refuge.

"We invite everyone to join us and take part in activities we'll have that day," said Sherry James, supervisory park ranger. "We'll host a hay ride, tram tours, and activity booths. We've scheduled a Theodore Roosevelt living historian to mingle with visitors. And of course, Honker the Blue Goose will be wandering around."

James noted that although the fishing program will have closed for the season, it will be offered for free that day for kids 12 and under. Visitors also will have the opportunity to hike the trails and enjoy the fall colors throughout the area.

Prior to the event, senior scholarship winners from Adams City, Montbello, and Brighton high schools will be honored at a breakfast at the Refuge from 8:30 a.m. to 10:30 a.m. Winners also will be invited to attend the RMA Wildlife Society Bluestem Banquet on Thursday, October 14, during which scholarship winners will be announced. Seniors from Adams City, Montbello, and Brighton high schools are eligible to participate in the scholarship program each year. Students interested in submitting an essay for next year's scholarship contest should contact their high school counselor.

For more information on Wild Things 2004 scheduled for Saturday, October 16, call the Visitor Center at 303-289-0930 or visit <http://rockymountainarsenal.fws.gov>.

### MILESTONES

Comments are always welcome.  
Please forward to:  
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[www.rma.army.mil](http://www.rma.army.mil)

RMA Health Line at the Rocky  
Mountain Poison and Drug Center  
1-888-671-7848

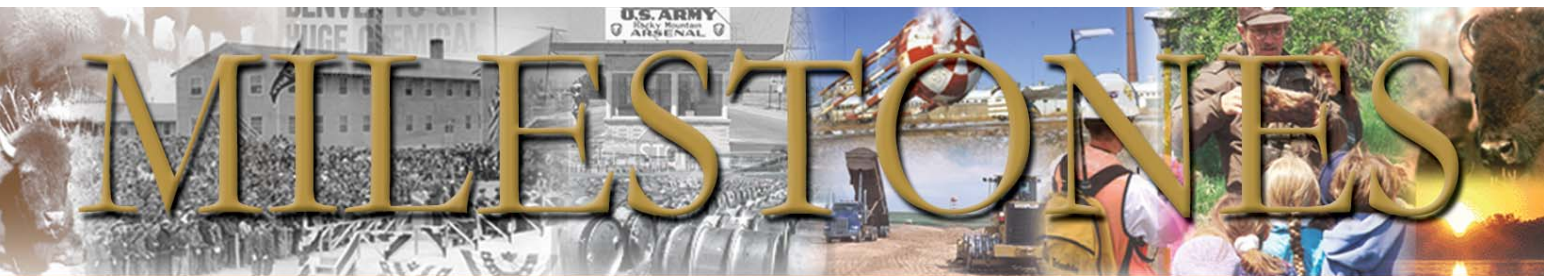
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Photo by Josh Barchers/DPRA, Inc.

## DID YOU KNOW?

Adams County is in one of the fastest growing regions within the Denver metro area, due in part to the completion of the E-470 beltway that provides access to DIA and links the north and south portions of the metro area along its eastern edge, as well as affordable and available vacant land.

Visit our website:  
[www.rma.army.mil](http://www.rma.army.mil)

# Off-Site RMA Groundwater Poses No Health Risk To Residents

Thanks to concerted clean-up efforts, Rocky Mountain Arsenal's (RMA) groundwater continues its improvement track record. RMA treats contaminated groundwater both on and off of the site, and since the late 1980s, regular monitoring shows a dramatic decline in chemical concentrations off of the site.

According to Tim Kilgannon, special projects manager at RMA, there are no adverse health risks to RMA neighbors living over or near areas above groundwater contamination. Communities north and west of RMA are connected to the South Adams County Water and Sanitation District (SACWSD), a municipal water system, which serves new and existing Commerce City areas.

Therefore, the potential to drink contaminated groundwater has been eliminated. The SACWSD municipal water system includes additional water from Denver, and the extension of these lines north of RMA was funded by the U.S. Army and Shell Oil Company.

Furthermore, the Environmental Protection Agency (EPA) conducted a vapor pathway exposure study in 2004 to determine if chemical vapors from the groundwater could pose a health risk to residents by permeating through soil or a basement. The study found that there is no risk to residents living above or near the groundwater plume.

Groundwater continued on page two

# Revegetation Program Returns Arsenal To Native Prairie

RMA's revegetation program adds hundreds of acres of native flowers, grasses and shrubs to the site each year. Having planted more than 3,800 acres to date, the program expects to total 8,000 acres by the time the cleanup program is complete in 2011.

Bruce Hastings, supervisory restoration ecologist with the U.S. Fish and Wildlife Service (Service), said Colorado's susceptibility to drought is one reason the land needs to be restored to prairie vegetation.

"Native plants have root systems that develop into a thick mat under the surface of the soil," he explained. "The roots of these plants protect the soil during droughts and make it harder for weeds to survive. A lot of the species we're planting are very drought tolerant, although they may not stay green during some years."



The Arsenal is home to one of the most successful shortgrass prairie restoration programs in the nation.

"Our hope in the end is that the Arsenal will have large amounts of functioning native prairie along with the wildlife," added Hastings. "It will be a good enhancement for wildlife and for environmental education programs." ■



# Fishing Program Reels In Big Attendance

**R**MA is wrapping up its most successful fishing season yet as it rounds the corner to October 10, when the program ends for the year. Just two months into the program there were a total of 1,050 anglers who had already attended the required orientation and received fishing permits.

"In the past we did a lottery and limited the number to 600 participants," said Ivan Vicente, outdoor recreation planner. "Last year we opened it up to anyone who wanted to fish and had about 400 people attend the required orientation. This year we've seen more than double the number of anglers."

**Anglers, please note that October 3, 9 and 10 fishing hours are from 8:00 a.m. to 4:00 p.m.**

Anglers can cast for northern pike, large-mouth bass, and blue gill, among others. This season's biggest catch was a 43-inch, 27-pound northern pike caught in Lake Ladora.

Thanks to RMA Anglers volunteers, the Friday night fishing program also grew this year. The program, created for physically-challenged patients from Craig Hospital and Children's Hospital, brings patients to the Refuge on alternating Friday evenings to fish at Lake Mary.

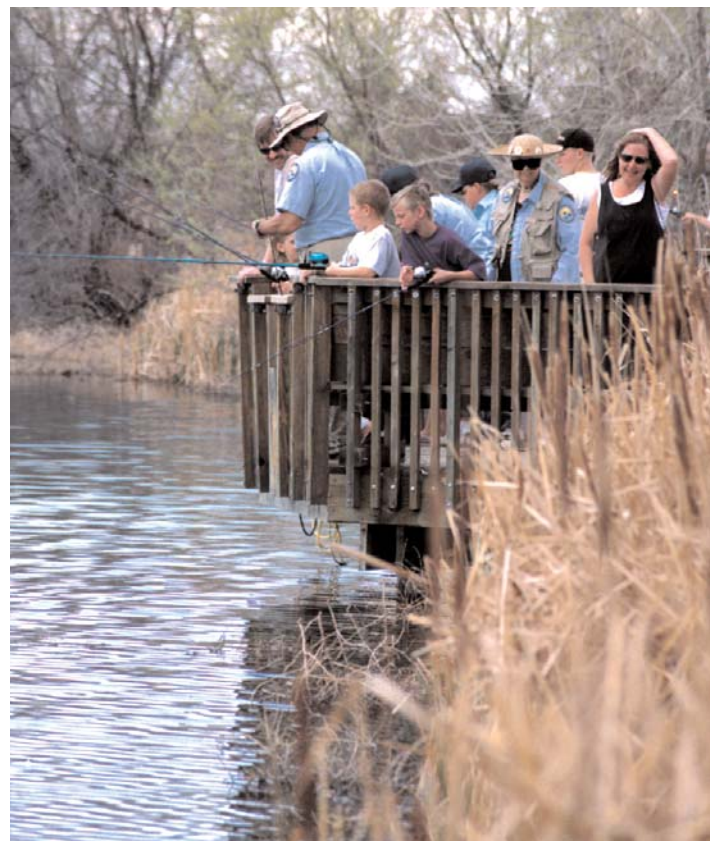


Photo by Josh Borchers/DPRA, Inc.

USFWS volunteers help out with the large turnout of anglers.

Consider the Refuge's fishing program when planning recreational activities for next summer. The \$3 daily fee, used for RMA fisheries management and fishing facilities, applies to anyone 18 or older. Kids fish for free.

Orientation is required before anglers can fish. Look for information about the 2005 fishing season in February on the Refuge's web site <http://rockymountainarsenal.fws.gov>, or call the Visitor Center at 303-289-0930. ■



Photo by Josh Borchers/DPRA, Inc.

Anglers head out to the lakes to cast their lines.

## Groundwater continued from page one

"In the past, the Army evaluated all risks in the groundwater and the only risk of major concern was due to ingestion," explained Kilgannon. "But since water off-post is provided by SACWSD, everyone is on city water eliminating the major pathways of ingestion."

Past RMA disposal practices resulted in elevated chemical concentrations in the shallow groundwater, which flowed off of RMA to the north and northwest, following the natural migration of groundwater in the area. RMA boundary systems treating this water have significantly reduced chemical levels in the off-post groundwater, in some areas as much as 80-90 percent. In conjunction with the Army, Tri-County Health Department (TCHD) has sampled private wells off-site of RMA since 1988 to determine the chemical levels in the off-post groundwater. TCHD maintains a database of well results and their information is incorporated into RMA's Long-Term Groundwater Sampling Program. If you would like information about TCHD's program, you can call 303-288-6816.

If you would like more information about groundwater surrounding RMA, please call our community information line at 303-289-0136. Experts are available to talk with individuals, groups, and homeowner associations about this issue or any other RMA topic of community interest. ■

# Arsenal Plans For Five Year Review

**R**MA is readying itself for its second Five-Year Review and a Review Team has been organized to begin the year-long process. RMA's first Five-Year Review report was issued in October 2000, and accepted by the EPA in January of 2001. The EPA requires cleanup sites that have contamination above specified levels to conduct five-year reviews.

The objective of the review is to determine whether the implementation of RMA's remedy is protective of human health and the environment and whether it can be expected to remain protective even after completion. In addition to the Five-Year Review, RMA regularly evaluates its cleanup progress to ensure it is being completed in safe and efficient manner.



Photo by Josh Borchers/DPRA, Inc.

Technical experts inspect demolished equipment as part of RMA's cleanup process.

The Five-Year Review report involves extensive reviews of documents, data analysis, interviews and site inspections. The review team's work will include evaluating assumptions made during the original remedy selection. The team also weighs changes in laws and regulations that may affect site clean-up, and details about completed projects, including a summary of its effectiveness.

The community will receive regular notices about the review through public announcements in local newspapers. The notices will include the date and times of any public meetings as well as list specific deadlines for the review and comment process. Information will also be presented at RMA's Restoration Advisory Board meeting, which is open to the public. Information will be made available once the Review is complete, including how to obtain the final document. The Review process concludes with the preparation and delivery of a final Five-Year Review report, which is due to the EPA in December 2005 for its review and approval.

Headed up by the U.S. Army, the Review Team consists of members of the RVO (Army, Shell Oil Co., and the U.S. Fish and Wildlife Service) as well as representatives from the EPA, the Colorado Department of Public Health and Environment, and Tri-County Health Department. ■

# Why Does That Deer Have A Collar?

**R**MA visitors may have noticed that the local wildlife is donning some new jewelry. In early 2004, biologists began evaluating Mule and White-tailed Deer as part of an on-going study to determine why the deer herds are producing fewer fawns. Deer that are a part of this investigation are wearing collars with radio transmitters, which provide biologists with valuable information about their habitat.

"In the late 1990s, we noticed that fewer fawns were showing up in our annual fall surveys," said Biologist Sherry Skipper, who heads the study. Skipper said the scarcity of fawns might be due to several factors including winter nutritional deficiencies, age of the deer, RMA's coyote population and/or drought.

Winter nutritional deficiencies may cause does to have fewer young. There are portions of RMA that will remain temporarily unsuitable for deer habitat until native grassland vegetation can be reestablished due to RMA's current cleanup program. Actual remediation work is not a

factor for the population decline.

Because hunting is not allowed on the site, RMA's deer population has aged. Therefore, these older deer are less able to produce fawns. "Our population is unusual in a number of ways. We have a fence around RMA that prevents deer from getting in or out," said Skipper.

Biologists have determined that RMA's coyote population has grown and is preying on young fawns. This has increased in recent years because the coyote's main prey, the prairie dog, has declined due to recent plague outbreaks.

Lastly, recent droughts have taken a toll on or altered vegetation making fawns more vulnerable.

"We need to find out if the does are pregnant," says Biologist Eric Stone, "then follow them until they give birth to fawns. Then we'll follow the fawns to determine if they survive and what causes mortality." Skipper and Stone hope that by tracking the deer with radio-transmitters they can eventually find out what causes fewer fawns to survive and whether intervention is needed. ■



# MILESTONES

All photos by DPRA, Inc./Josh Barchers

## Proposed Alternative Cleanup Plan for Former Basin F and Lime Basins

A proposal by the Army is currently under consideration for changing the Record of Decision (ROD) remedy for the Former Basin F and Lime Basins. The Former Basin F project is located in the northwest portion of the site and the Lime Basins project is located in the central portion of the site. The ROD remedy specified solidifying, in place, 190,000 cubic yards of highly contaminated soil in Basin F and excavating 54,000 cubic yards of contaminated soil from the Lime Basins and surrounding areas, and disposing the material in the on-site triple-lined enhanced landfill (ELF).

"We've been working on treatability studies," said Lorri Harper, Remediation Venture Office project engineer, "and based on our field work, conditions in the Lime Basins exist that weren't identified in the ROD. This is a much more complex project."

From the early 1940s to the mid 1970s, the three lime basins received lime slurry and pesticide production wastewater. Until 1957, the wastewater flowed through the basins before being discharged into a basin known as Basin A. Lime was used to remove metals and reduce the arsenic concentration from wastewater produced during chemical weapons production. The removal process produced the heavy metal contaminated lime sludge waste that remains.

Harper noted that removal of the Lime Basins material, which is similar to putty, would require mixing the waste with another material to make it more stable before moving it to the landfill. Doing so would triple the original estimated volume disposed in the ELF. It also would be necessary to construct structural support for the excavation sidewalls of the Lime Basins to avoid potential collapse. In addition, Lime Basins is identified as a potential chemical agent/munitions



The Army proposes placing Former Basin F soils into the enhanced landfill (shown above) to utilize the extra space now available.

site. Monitoring and removal of these items during excavation was identified in the ROD and is therefore not a change, but adds many complexities associated with the excavation. The additional stabilizing work would increase the cost of the project from \$3 million to \$18 million with the potential for even more cost growth.

Because of increased cost, worker safety, and design issues not foreseen at the time of the ROD, RMA technical experts are proposing a change to the ROD remedy.

"The proposed remedy change involves leaving the putty-like material in-place rather than excavation," Harper said. "We would have a groundwater barrier placed around the Lime Basins and a dewatering system to reduce the risk of groundwater contamination. In addition, a protective

RCRA-Equivalent cover consisting of a specified soil type and a crushed concrete barrier to prevent burrowing animals from penetrating into the waste will be placed over the Lime Basins. This cover system also is being used on five other remediation projects at RMA. Last, an additional component will be a groundwater treatment system downgradient of the basins." The intent of these proposed changes are equivalent to or more protective than the ROD remedy.

In order to proceed, the ROD must be amended to change the cleanup approach. As part of the amendment, it is proposed that the remedy for Former Basin F also be changed to utilize the extra space now available in the triple-lined landfill.

"The former Basin F remedy was to solidify waste to 10 feet and place a cover over it," said Harper, "but now we will excavate the high-level contaminated soils and dispose of them in the enhanced landfill. In essence, we're switching the remedies between the Lime Basins and Former Basin F."

No remedy field work will be done until the ROD amendment has been finalized. A revised Proposed Plan will be submitted for public review. The public review process includes a revised Proposed Plan for Lime Basins and Former Basin F describing the remedy changes, a public meeting and an evaluation of public comments and input. After comments have been received from the public, a decision will be made on whether or not to proceed with the proposed remedy. The decision is expected by early 2005. ■

## Rocky Mountain Arsenal in Your Neighborhood

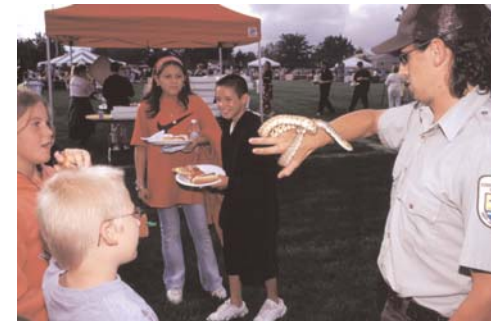


RMA spent a busy summer season at numerous community outreach programs. The communications team took the opportunity to attend several events and sponsored picnics in Commerce City, Brighton, and Montbello to answer questions and provide information to residents about RMA's cleanup and how the Refuge is progressing.

The team's exhibits at these community events included details about the on-going clean-up efforts at RMA, the recent land transfer to the Service establishing Rocky Mountain Arsenal National Wildlife Refuge, and

how planting native vegetation is bringing the site back to its original roots — a short grass prairie ecosystem. The vegetation discussion proved a timely topic during Colorado's water conservation season. Information about xeriscaping, water conservation, and RMA's natural prairie restoration program was also available.

The communications team would like to thank the communities for the summer outreach opportunities. The team enjoyed talking with residents about the site's progress and exciting future. ■



Top: Children enjoy a closeup view of the wildlife display. USFWS staff shows off a western bullsnake, one of the seven species of snakes that inhabits the Arsenal.

## Soccer Stadium Planned for Former Western Tier Land

Kroenke Sports Enterprises (KSE) and Commerce City recently announced plans for a joint venture to build a 20,000-seat soccer stadium as the new home for the Colorado Rapids professional soccer team on the RMA's former Western Tier Parcel. The groups also plan to build two major league soccer practice fields, up to 20 youth soccer fields, and 600,000 square feet of new retail and commercial space as part of their joint venture.

In June 2004, Commerce City purchased 917 acres of the Western Tier Parcel from the U.S. Army for \$4.7 million, with plans to develop the land as the City's Prairie Gateway complex. This \$131 million development project will include new city offices for Commerce City and retail development including a hotel, stores, restaurants, and commercial office space.

"The Prairie Gateway complex will include a visitor center and environmental education complex that will serve as the entryway to the Rocky Mountain Arsenal National Wildlife Refuge, plus visitor related offices of the U.S. Fish and Wildlife Service," said Tom Jackson, remedy coordinator for the Service.

Funds from the sale of the Western Tier Parcel to Commerce City will be used to design and build the new visitor center, as mandated by the Rocky Mountain Arsenal National Wildlife Refuge Act of 1992.

Preliminary designs for the site and stadium should be made public in late 2004, with groundbreaking for the stadium taking place in Spring 2005. The stadium will be completed in time for the opening of the 2007 Colorado Rapids soccer team season. Other phases of the project will be developed over the next 10 years. ■



Colorado Rapids players (L to R): Chris Henderson, Joe Cannon, John Spencer, Pablo Mastroeni and other audience members listen as Kroenke Sports Enterprises and officials of Commerce City announce plans to develop more than 360 acres of open land to house a 20,000-seat soccer stadium.

## Grant Sponsors Hands-On Environmental Education at the Refuge

The Service continues its community involvement with the sponsorship of the Adams County School District 14 Grant. Initiated in 2001, the Grant sponsors the salary of one teacher who works with seventh-grade students from Adams City and Kearney Middle Schools to learn about environmental education and wildlife.

The program is designed to fit into the school's curriculum. In the future, when students visit the Refuge, the curriculum will be changed to focus directly on what the site has to offer.

"The course supplements the science education that students get in the classroom," said David Hoskins, environmental science teacher. Hoskins has run the program since March 2004.

Teachers select students to be a part of the program each year. Three groups of 15 students meet with Hoskins once a week for seven weeks. With four sessions per school year, the Service exposes 180 students to in-depth, hands-on information about environmental education, wildlife habitat and the Service. It's a big hit with the students and teachers have noticed an increase

in academic achievement and think it's directly related to this program.

Stacy Armitage, education specialist with the Service, developed the program and taught during its first two years. "The main reason the program was developed was to help increase the science portion of the Colorado Student Assessment Program (CSAP) scores for eighth graders," said Armitage.

"Students learn scientific inquiry skills, how to do lab write-ups and conduct topical investigations, and then they attend field trips to use the skills they've learned in the classroom," Armitage said.

"We've received feedback that the students love being outside and applying what they've learned in the real world," said Armitage. "They like seeing how it all fits together, not just reading about it in the classroom." ■